

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	: Masayuki SHIMIZU et al.	Group Art Unit : 3726
Appl. No.	: 10/561,960 (National Stage of PCT/JP04/09085)	Examiner : E. E. Cadugan
Filed	: December 22, 2005	Confirmation No. : 3087
For	: BENDING APPARATUS, METHOD THEREOF, AND BENDING TOOL	

**COVER LETTER AND INTERVIEW SUMMARY**

Commissioner for Patents  
U.S. Patent and Trademark Office  
Customer Service Window, Mail Stop Amendment  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Sir:

Responsive to the Notice of Non-Compliant Amendment mailed October 14, 2009,  
which sets a one-month period of response to expire on November 16, 2009 (November 14, 2009  
falling on a Saturday), Applicants hereby submit:

- a copy of a previously-submitted complete English language translation of the claims;  
and
- a copy of a previously-submitted Preliminary Amendment.

PCT/JP04/09085, of which the present application is the U.S. National Stage, contains 19  
claims. WO 2004/112981 is the International Publication of PCT/JP04/09085 and shows the 19  
claims of PCT/JP04/09085. However, a defective English translation of PCT/JP04/09085 was  
filed with the present application on December 22, 2005, and inadvertently contained only 13

claims. Additionally, a Preliminary Amendment, also filed on December 22, 2005, presented claim amendments to the 13 claims presented in the defective English translation of PCT/JP04/09085. Therefore, the Preliminary Amendment filed on December 22, 2005 was also defective.

A Notification of Missing Requirements dated March 22, 2006 required submission of a correct English language translation of PCT/JP04/09085. On May 22, 2006, Applicants submitted a correct English language translation of the 19 claims of PCT/JP04/09085, as well as a correct Preliminary Amendment to the 19 claims of PCT/JP04/09085. In the Preliminary Amendment filed on May 22, 2006, Applicants also added new claim 20.

The English language translation of the claims submitted on May 22, 2006 was a complete translation of the claims of PCT/JP04/09085. The Preliminary Amendment filed on May 22, 2006 was based on the complete translation of the claims of PCT/JP04/09085.

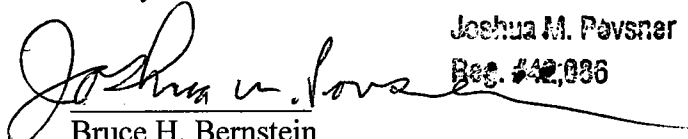
In a Notice of Non-Compliant Amendment mailed October 14, 2009, the Examiner required clarification of the status of claims in the present application. On October 20, 2009, Applicants' representative, Joshua M. Povsner, and the Examiner discussed the status of the claims in the present application. Applicants' representative agreed to submit this cover letter, and resubmit the correct English language translation of the 19 claims of PCT/JP04/09085 as filed on May 22, 2006, as well as the Preliminary Amendment filed on May 22, 2006.

The English language translation of the claims and the Preliminary Amendment submitted concurrently herewith are labeled copies of the English language translation of the claims and Preliminary Amendment previously submitted on May 22, 2006.

Accordingly, the attached English language translation and Preliminary Amendment filed on May 22, 2006 are the only correct translations and amendments of the claims in the present application, and previous documents submitted on December 22, 2005 should be disregarded.

The U.S. Patent and Trademark Office is hereby authorized to charge any additional fees, or credit any overpayment to Deposit Account No. 19-0089.

Respectfully Submitted,  
Masayuki SHIMIZU et al.

  
Joshua M. Pevsner  
Reg. No. 29027

October 29, 2009  
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1. A bending apparatus which moves one of upper and lower tables, and performs bending on a workpiece with tools attached to said upper and lower tables, comprising:

tool-layout information determination device for automatically or manually determining tool-layout information based on product information;

tool housing device for housing a tool group including a plurality of split tools, for each tool holder;

tool exchanging device for exchanging tool groups for each tool holder between said tool housing device, and said upper and lower tables; and

process-station formation device for splitting a tool group transferred for each tool holder from said tool housing device to said upper and lower tables through said tool exchanging device into a plurality of tool groups based on said tool-layout information from said tool-layout information determination device, thereby forming a plurality of process stations.

2. The bending apparatus according to claim 1, wherein all of said plurality of split tools have the same length.

3. The bending apparatus according to claim 2, wherein all of said plurality of split tools have a length of 5 mm.

4. The bending apparatus according to claim 1, wherein a combination and layout of split tools necessary for forming process stations predetermined based on product information are formed in a tool holder of said tool housing device.

5. The bending apparatus according to claim 4, wherein said combination and layout of split tools necessary for forming process stations are automatically or manually determined.

6. The bending apparatus according to claim 1, wherein said tool housing device is constituted by multistage racks mounted up and down on the rear face of said upper and lower tables, and said multistage racks house said plurality of split tools, for each tool holder.

7. The bending apparatus according to claim 1, wherein said tool exchanging device is constituted by holder hold members for holding a tool holder, and said holder hold members are movable frontward, backward, upward and downward between said tool housing device and said upper and lower tables.

8. The bending apparatus according to claim 1, wherein said process-station formation device comprises a separator, and said separator is movable rightward, leftward, frontward, backward, upward and downward.

9. The bending apparatus according to claim 8, wherein said separator has an arm which is rotatably mounted on an abutment of a back gauge.

10. The bending apparatus according to claim 1, wherein said process-station formation device comprises a fork-like separator, and said fork-like separator has a pair of taper claws.

11. The bending apparatus according to claim 1, wherein freely attachable/detachable tool holders are mounted to the center of said upper and lower tables, to whose both sides fixed tool holders are mounted, and holder clamp members for fixing said freely attachable/detachable tool holders are mounted in the center said upper and lower tables.

12. The bending apparatus according to claim 1, wherein tool clamp members for supporting and fixing the desired tool group are mounted in said freely attachable/detachable tool holders and said fixed tool holders.

13. A bending method in a bending apparatus which moves one of upper and lower tables, and performs bending on a workpiece with tools attached to said upper and lower tables,

forming a process station by isometric split tools based on automatically or manually determined tool-layout information, and then performing bending.

14. A bending method in a bending apparatus which moves one of upper and lower tables, and performs bending on a workpiece with tools attached to said upper and lower tables,

forming a plurality of process station by transferring for each tool holder a tool group which comprises a plurality of split tools to upper and lower tables, splitting said transferred tool group into a plurality of tool groups based on automatically or manually determined tool-layout information, and then performing bending.

15. The bending method according to claim 14, wherein all of said plurality of split tools have the same length.

16. The bending method according to claim 15, wherein all of said plurality of split tools have a length of 5 mm.

17. A bending tool in a bending apparatus which moves one of upper and lower tables, and performs bending on a workpiece with tools attached to said upper and lower tables,

provided with a groove, between a process portion and clamp portions with respect to the tool holder of the bending tool, with which tool moving and positioning device for moving and positioning the bending tool in a longitudinal direction on the tool holder can be engaged.

18. The bending tool according to claim 17, wherein said groove is tapered so that a tapered member of said tool moving and positioning device can be freely engaged therewith.

19. The bending tool according to claim 17 or 18, wherein said groove is formed on a back face of the bending tool.



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Masayuki SHIMUZU et al.

Group Art Unit : Not Yet Assigned

Appl. No. : 10/561,960

I.A. Filed : June 22, 2004

Examiner : Not Yet Assigned

For : BENDING APPARATUS, METHOD THEREOF, AND BENDING  
TOOL

**PRELIMINARY AMENDMENT**

Commissioner for Patents  
U.S. Patent and Trademark Office  
Customer Service Window, Mail Stop AMENDMENT  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Sir :

Prior to Examination, the Examiner of the present application is  
respectfully requested to amend the claims as shown herein.

**Amendments to the Specification** begin on page 2 of this paper.  
**Amendments to the Claims** begin on page 3 of this paper.  
**Remarks** begin on page 8 of this paper.

IN THE SPECIFICATION

Please replace the Abstract with the following replacement Abstract:

ABSTRACT

In a bending apparatus which moves one of upper and lower tables, and performs bending on a workpiece by tools attached to the upper and lower tables, a tool group including a plurality of split tools is transferred to the upper and lower table, a plurality of process stations are formed by splitting the transferred tool into a plurality of tool groups based on automatically or manually determined tool-layout information, and then bending is carried out.

IN THE CLAIMS

Upon entry of the present amendment, the status of the claims will be as is shown below. This listing of claims replaces all prior versions and listings of claims in the present application.

1. (Currently Amended) A bending apparatus which moves one of upper and lower tables, and performs bending on a workpiece with tools attached to said upper and lower tables, comprising:

a tool-layout information determination device for automatically or manually determining tool-layout information based on product information;

a tool housing device for housing a tool group including a plurality of split tools, ~~for each tool holder~~;

a tool exchanging device for exchanging tool groups ~~for each tool holder~~ between said tool housing device, and said upper and lower tables; and

a process-station formation device for splitting a tool group transferred ~~for each tool holder~~ from said tool housing device to said upper and lower tables through said tool exchanging device into a plurality of tool groups based on said tool-layout information from said tool-layout information determination device, thereby forming a plurality of process stations.

2. (Original) The bending apparatus according to claim 1, wherein all of said plurality of split tools have the same length.

3. (Original) The bending apparatus according to claim 2, wherein all of said plurality of split tools have a length of 5 mm.

4. (Original) The bending apparatus according to claim 1, wherein a combination and layout of split tools necessary for forming process stations predetermined based on product information are formed in a tool holder of said tool housing device.

5. (Original) The bending apparatus according to claim 4, wherein said combination and layout of split tools necessary for forming process stations are automatically or manually determined.

6. (Original) The bending apparatus according to claim 1, wherein said tool housing device is constituted by multistage racks mounted up and down on the rear face of said upper and lower tables, and said multistage racks house said plurality of split tools, for each tool holder.

7. (Original) The bending apparatus according to claim 1, wherein said tool exchanging device is constituted by holder hold members for holding a tool holder, and said holder hold members are movable frontward, backward, upward and downward between said tool housing device and said upper and lower tables.

8. (Original) The bending apparatus according to claim 1, wherein said process-station formation device comprises a separator, and said separator is movable rightward, leftward, frontward, backward, upward and downward.

9. (Original) The bending apparatus according to claim 8, wherein said separator has an arm which is rotatably mounted on an abutment of a back gauge.

10. (Original) The bending apparatus according to claim 1, wherein said process-station formation device comprises a fork-like separator, and said fork-like separator has a pair of taper claws.

11. (Original) The bending apparatus according to claim 1, wherein freely attachable/detachable tool holders are mounted to the center of said upper and lower tables, to whose both sides fixed tool holders are mounted, and holder clamp members for fixing said freely attachable/detachable tool holders are mounted in the center said upper and lower tables.

12. (Original) The bending apparatus according to claim 1, wherein tool clamp members for supporting and fixing the desired tool group are mounted in said freely attachable/detachable tool holders and said fixed tool holders.

13. (Original) A bending method in a bending apparatus which moves one of upper and lower tables, and performs bending on a workpiece with tools attached to said upper and lower tables,

forming a process station by isometric split tools based on automatically or manually determined tool-layout information, and then performing bending.

14. (Currently Amended) A bending method in a bending apparatus which moves one of upper and lower tables, and performs bending on a workpiece with tools attached to said upper and lower tables,

forming a plurality of process ~~station~~ stations by transferring ~~for each tool holder~~ a tool group which comprises a plurality of split tools to upper and lower tables, splitting said transferred tool group into a plurality of tool groups based on automatically or manually determined tool-layout information, and then performing bending.

15. (Original) The bending method according to claim 14, wherein all of said plurality of split tools have the same length.

16. (Original) The bending method according to claim 15, wherein all of said plurality of split tools have a length of 5 mm.

17. (Original) A bending tool in a bending apparatus which moves one of upper and lower tables, and performs bending on a workpiece with tools attached to said upper and lower tables,

provided with a groove, between a process portion and clamp portions with respect to the tool holder of the bending tool, with which tool moving and positioning device for moving and positioning the bending tool in a longitudinal direction on the tool holder can be engaged.

18. (Original) The bending tool according to claim 17, wherein said groove is tapered so that a tapered member of said tool moving and positioning device can be freely engaged therewith.

19. (Currently Amended) The bending tool according to claim 17 ~~or 18~~, wherein said groove is formed on a back face of the bending tool.

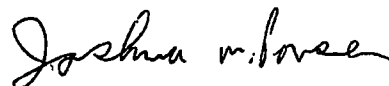
20. (New) The bending tool according to claim 18, wherein said groove is formed on a back face of the bending tool.

REMARKS

Upon entry of the present amendment, claim 19 will have been amended to eliminate multiple dependency. Claim 20 will have been added for consideration by the Examiner. In this regard, claim 19 will depend only from claim 17, and claim 20 recites subject matter identical to claim 19 but depends from claim 18. Applicants will also have amended claims to remove informalities. Further, Applicants will have added a replacement Abstract.

Should the Examiner have any questions, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully Submitted,  
Masayuki SHIMUZU et al.

 Joshua M. Povsner  
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Bruce H. Bernstein  
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May 22, 2006, 2006  
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